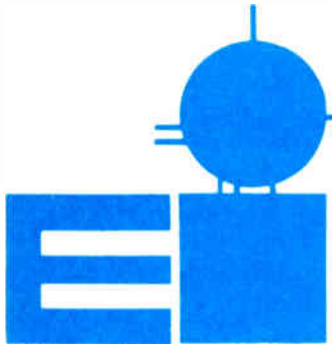


May 1988

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## NRSC Proposes Second Standard to Improve AM Radio Reception

LAS VEGAS, Apr. 10 -- The National Radio Systems Committee (NRSC) proposed a second voluntary national standard (NRSC-2) for AM radio transmission. The standard enables AM broadcasters to further control interference to their signals for better audience reception, and complements the first NRSC standard which was introduced in 1987.

The committee met prior to the opening of NAB's 66th annual convention at the Las Vegas Convention Center.

NAB's AM Improvement Subcommittee Chairman Art Suberbielle said, "The listening public has benefited greatly by the first NRSC standard and this additional action is another important step in helping AM radio regain its prominent position.

Suberbielle is president and general manager of KANE-AM, New Iberia, LA.

NRSC-2 is known as an "RF Mask," and parallel with this is the development of a new technology to monitor AM splatter. This new monitor permits economical and accurate measurements of undesired AM interference and can be used in conjunction with the RF Mask.

NRSC is a joint committee sponsored by NAB and the Electronics Industries Association (EIA). It is open to all interested parties and includes representatives of broadcast companies, receiver manufacturing companies and broadcast equipment manufacturers.

After 18 months of intensive work, the NRSC, on January 10, 1987, authorized NAB and EIA to publish a voluntary national standard to control the extent of audio preemphasis and bandwidth of AM stations. At the end of March 1988, more than 700 AM stations in the United States and Canada have notified NAB of their conversion to the NRSC standard. NAB has petitioned the FCC to make the transmission portions of the standard mandatory. AM stations would have until January 1, 1990 to convert to the standard.

On the convention exhibit floor, NAB had a special exhibit that demonstrates use of the NRSC standard by AM stations and AM receiver manufacturers. There are six prototype NRSC receivers on display. Comparisons can be made between NRSC and non-NRSC audio processing on present and future AM receivers. It also can be seen how use of the NRSC standard reduces second-adjacent channel AM interference.

The first NRSC standard is intended to specify the audio signals present at the input to a station's AM transmitter. But the NRSC's work did not stop with audio signals. On September 9, 1987, after approximately seven months of work, the NRSC released a draft proposed voluntary national standard for AM RF limitations. This second standard is intended to characterize the RF emissions of AM stations that use the first standard. It specifies the RF signals that leave a station's transmitter and antenna system. To allow for accommodation of all parties' views, the NRSC established a six month public comment period. That comment period expired March 11, with no opposing comments filed.

On April 7, 1988, the NRSC authorized NAB and EIA to publish the RF Mask as standard No. NRSC-2. There were some editorial revisions discussed at Thursday's meeting. These revisions will be incorporated into the standard and published in late May. The RF Mask consists of (1) limit on out-of-band AM emissions, and (2) accompanying measurement procedures. A copy of the RF Mask standard is available at the NRSC exhibit in the south hall of the convention center, near the south entrance and the engineering sessions.

\*\*\*\*\*

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**Ronald Reagan:  
'Media Revealing Deadly  
Truth About Drugs'**

Quote Worth Noting... "Gone are the days when drug use was frequently glamorized in movies and television, on radio, and in print. *Today the media is revealing the deadly truth about drugs and why each of us must take a stand...* I hope you will keep up your tough reporting on this story. This means holding government officials accountable, of course, but it also means keeping a close eye on trends in drug use in America...

"The NAB is now in its fifth year of the NAB 'on-air initiatives,' which include a variety of major programs against drug and alcohol abuse... ABC contributed 482 commercials, half in prime time, to media-advertising partnership spots in the past nine months... The Chicago Sun-Times has teamed up with WLS-TV Chicago in 'Say No to Drugs.' On behalf of the next generation of Americans -- the many lives that will be saved and whose futures will be bettered -- I want to extend a heart felt thank you to each one of you."

\*\*\*\*\*

*Editor's  
Notebook*



**Ye Olde Editor**

Another NAB Convention has come and gone and we are still no closer to single AM stereo system then we were a few years ago! When Common Point presented a Motorola news release in the February issue, I was accused of selling out to Motorola's "big-money" interests.

On balance I am requesting Kahn Communications to send me a news release for next month's Common Point, where upon I will be villified for being in bed with Kahn!

Now...to everyone's amazement... do you want to know where my AM stereo loyalties lie? Well, I thought that for once in its life, the F.C.C. took a gutsy stand (way back when) when they originally adopted the Magnavox AM stereo system and had seemingly solved everyone's problem simultaneously... the broadcaster's, the equipment, manufacturer's and the uninformed public's problem. Had they stuck with that decision instead of caving in, AM stereo would be live and healthy today with just about every switching over to it, including the receiver people.

However the greed of both Motorola and Kahn pre-empted that and as a result have created their own stew.

I like the comment in todays Talk-back Column from Mishawaka, "Grampa, what was this thing call AM stereo?"

Oops! I just realized what I have done. Now both Kahn and Motorola devotes will descend on me like a swarm of locusts!

See you next month!

\*\*\*\*\*

**COMMON  
POINT  
READINGS**

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# If The Shoe Fits...

There's an old saying, "If the shoe fits, wear it!" Well, when it comes to audio connectors, this may not be such a good idea. Just because a certain plug will slide into a certain jack, the results may not be ideal – in fact, there may be a major problem if things are not "just right."

Let's examine the most common instance of an incorrect connection that seems to fit: the tip/sleeve phone plug inserted into a tip/ring/sleeve phone jack. Either a tip/sleeve (T/S) or a tip/ring/sleeve (T/R/S) phone plug have the same nominal 1/4-inch diameter, and the same overall length. Therefore, either plug will fit into a T/S or a T/R/S jack. The electronic results, however, may be anything but a good fit.

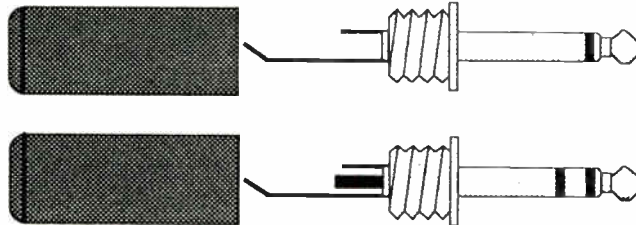
Generally, the tip of a plug or jack is the audio "high" connection, the sleeve is "ground" or shield, and the ring (on a T/R/S plug or jack) is the audio "low" connection. If the T/S plug is connected to a balanced input circuit, typically the shaft of the plug will ground the "low" side of the input. Depending on how the circuit is actually wired, however, this may cause an inversion of the signal. It also may lead to hum if a ground loop is created. Usually, it will not cause damage, but not so on the other end of the equipment.

If a T/R/S jack is the output port of a balanced circuit, and a T/S plug is inserted in that jack, it will ground one side of the balanced output. This may simply cause the output level to drop by 6 dB. In some cases, this can increase distortion, or induce hum and noise in the circuit. In some equipment, it may even overload the output amplifier and lead to circuit failure. Conversely, inserting a T/R/S plug into a T/S jack may or may not be acceptable; some of the same problems cited above may occur.

Thus, it is important to know

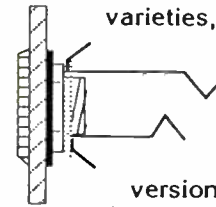
whether the input or output circuit utilizes a T/S or T/R/S jack, and whether or not it is electronically compatible with a T/S or T/R/S plug. (Of course, the circuit at the other end of the interconnecting cable may significantly affect the outcome of certain T/S-T/R/S mismatches).

Aside from the problem of 2-circuit vs 3-circuit phone jacks,



phone plug (for mono headphones) into a T/R/S stereo headphone output will short one of the headphone output amps and may destroy it. Patching this output to a balanced line-level input will yield undesirable, and potentially damaging results.

Miniature phone plugs and jacks also come in T/S and T/R/S varieties, and the same kinds of problems cited above can occur with these smaller versions, too.

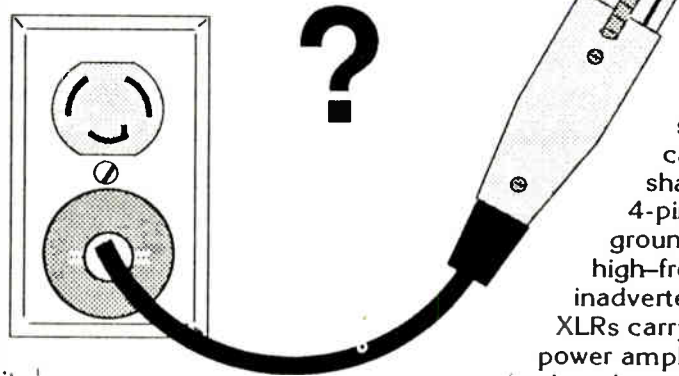


Phone plugs and jacks are not the only sources of mismatched grief in audio. A few sound companies

wire their loudspeaker cabinets using 3-pin or 4-pin XLR connectors. These XLRs are used to handle separate signals for bi-amplified cabinets (3-pins will share a ground, whereas 4-pins will use a separate ground for the low- and high-frequency drivers). If you inadvertently grab one of the XLRs carrying the output of a power amplifier and plug it into a microphone input (3 pin XLR) or an intercom system (4 pin XLR), you may be sorry before you even know what happened. Other sound companies use twist-lock connectors for the speaker bins — the same type used for 220 Vac power cords. Do you wonder what would happen if the male connector from the power amp output were inserted into a 220 Vac outlet? Needless to say, we recommend using some other, not-so-easily mistaken connectors for speaker bins.

Pin plugs, also known as "RCA plugs" or "phono plugs" are widely used, inexpensive 2-circuit connectors. There is a variation of this connector, however, which sports a longer-than-standard center pin. Such connectors are typically used for certain rf circuits. They may

continued on page 9



there is the added complication of vastly different signal levels and/or impedances. Even if the correct connectors are used, the circuit may be incorrect. For example, a T/R/S phone jack is typically used in patch bays to handle balanced, 600-ohm, line-level (+4 dBm) signals. The same jack may also be used to handle a balanced, -60 dBu microphone signal, however. Obviously, one must be careful about which jack is patched to a given circuit. Then, too, a stereo headphone circuit generally utilizes a 1/4-inch T/R/S jack to drive 8-ohm or higher impedance stereo phones. In this case, the tip, ring, and sleeve are set up for the left, right and common connections respectively. Insertion of a T/S

## READERS ASK...What can you tell me about Ferrite Beads?

### FERRITE BEADS

A Ferrite Bead is a dowel-like device which has a center hole and is composed of ferromagnetic material. Ferrite beads are available in many sizes and several different ferrite materials. When a ferrite bead is placed on to a current carrying conductor it will act as an RF choke. It offers a simple, convenient, inexpensive but yet a very effective means of RF shielding, parasitic suppression and RF decoupling.

The most common noise generating suspects in high frequency circuits are power supply leads, ground leads and connections, and instage connections. Adjacent leads and unshielded conductors can also provide a convenient path for the transfer of energy from one circuit to another. A few ferrite beads of the appropriate material placed onto these leads can

greatly reduce or completely eliminate the problem. Best of all, they can be added to most any existing electronic circuit.

The amount of impedance is a function of both the material and the frequency, as well as the size of the bead. As the frequency increases, the permeability will decline causing the losses to rise to a peak. With a rise in frequency the bead will present a series resistance with very little reactance. Since reactance is low there is little chance of resonance which could destroy the attenuation effect. Impedance is directly proportional to the length of the bead, therefore impedance will be additive as each similar bead is slipped onto the conductor. Since the magnetic field is totally contained within, it does not matter if the beads are touching or separated. Ferrite beads do not have to be grounded and they

cannot be detuned by external magnetic fields.

We recommend the #73 or the #77 ferrite bead material for the attenuation of RFI resulting from transmissions in the amateur band. The #43 material will provide best RFI attenuation from 30 to 400 MHz, and the #64 material is most effective above 400 MHz. The #75 material is recommended for RFI from 1 to 20 MHz, but can also be very effective at AM broadcast frequencies and even below.

Ferrite toroidal cores are also widely used for RFI and frequency attenuation. Not all bead materials are found in the toroidal core line. Whenever possible use the recommended bead material. If not available, substitute with a toroidal core material having the closest permeability. The lower permeability materials will have the greatest effect on higher

continued on page 5

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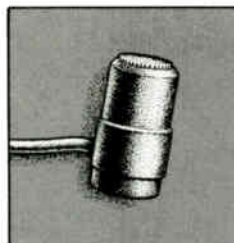
and other low-frequency signals. In addition, excellent shielding yields low RF interference and hum pickup.

### Easy to use.

The mic runs on phantom power or a standard 9-volt battery. The unique side-exit cable minimizes "cable hiding" problems. And universal mounting clips are included to handle virtually all attachment requirements.

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Note: mics shown actual size.

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## NAB Publishes 1988 Group Ownership Study

LAS VEGAS, Apr. 11 --The National Association of Broadcasters has published the 1988 edition of Group and Cross-Media Ownership of Television Stations. A group is two or more stations owned by a single individual or entity. This annual study was written by Dr. Herbert H. Howard of the University of Tennessee.

Group ownership of TV stations is a long-established characteristic of U.S. television broadcasting. Nearly 77 percent of the stations in the top 100 markets were group-owned on January 1, 1988. In markets of all sizes, a total of 789 stations were group-owned. A slightly larger number of groups (191) owned these stations in 1988 than in 1987 (187).

Many of these groups own other media-related properties. Only 4.2 percent of the stations in the top 100 markets involved local newspaper ownership. This is a sharp decline from the 1975 level of 16.1 percent.

The report is available from NAB's Station Services Department at \$10 for members and \$20 for nonmembers. To order, call (800) 368-5644.

\*\*\*\*\*

## FERRITE BEADS continued

frequencies and likewise, the higher permeability materials will have the greatest effect on the lower frequencies. Ferrite cores are usually much larger than ferrite beads and because of this they will accept many more wire turns. In many cases, where space will permit, this is an advantage since the impedance increases as to the number of turns squared.

The number of turns on a single hole Ferrite bead or a toroidal core is identified by the number of times the conductor passes through the center hole. To physically complete one turn it would be necessary to cause the wires to meet on the outside of the device, however the bead or core does not care about the termination of each end of the wire and considers each pass through the center hole as one turn. (This does not apply to multihole beads).

When winding a six-hole bead, the impedance depends upon the exact winding pattern. For instance, it can be wound clock-wise or counter clock-wise progressively from hole to hole, or criss-crossed from side to

continued on page 6

# PERSONS' POSTSCRIPTS



by  
**Mark  
Persons**

## NAB 88

The 66th Annual National Association of Broadcasters' (NAB) Convention in Las Vegas (pronounced Lost Wages) April 8-12th was bigger than ever. This year's attendance figure of 47,000 people topped the previous high of 40,000 last year in Dallas. The increase is appropriate considering the rapidly accelerating even changing world of broadcast technology. It is also evident that radio and television are growing more apart every year. As it stands now, the combined radio and television convention can only be held in a few cities. This is unlikely to change. It is time for the NAB to seriously consider splitting the annual convention into separate radio and television events. Splitting is a very natural and necessary change to insure the interests of both radio and television are well served.

Among the many new items introduced at the show this year were new solid state 10KW AM transmitters from Nautel and Continental. They join the Harris DX-10, introduced last year, as AM "Super" transmitters with exceptionally clean modulation capabilities. All three also offer very high overall efficiency, keeping power operating costs low. Using semi-conductors, operating parameters should remain constant rather than deteriorate as in tube transmitters. All three manufacturers have lightning protection and schemes to bypass failed output modules. They are more complicated to understand than high level plate modulated transmitters which

were the industry standard technology only a few years ago.

New audio consoles with better performance and lower cost were hot this year. Moseley introduced a line of remote pickup transmitters and receivers for the 450 MHz band. McMartin Industries is back in business again under new ownership making the same equipment they did before going out of business a few years ago.

Technical sessions this year were excellent with a full day on AM improvement. One of the papers was on another new anti-skywave AM transmitting antenna that will undergo testing soon.

There was a forum on EBS (the Emergency Broadcast System) where a proposal was made to reduce the time duration of the attention signal from the present 22.5 seconds to something shorter. Probably something one-third that length would be adequate to alert people and still give excellent EBS receiver false free operation. I personally know of no instance where an EBS receiver signaled an alarm when it should not have during the past 13 or so years of dual tone EBS signaling.

President Reagan spoke at the Convention Sunday. For those who could not see him live, there were high definition television monitors.

Next year's NAB Convention will be in Las Vegas again. The following year it will be in Atlanta. Apparently Atlanta is expecting to have convention facilities ready by that time. I wonder if they will have adequate space if the Convention continues to grow as it has recently.

\*\*\*\*\*

## FERRITE BEADS continued

side, or each turn can be completed around the outside of the bead. Each type of winding will produce very different results. The impedance for the six-hole bead in our chart is based on current industry standard, which is two and one half turns, going from one side to the other.

Fairly high currents can be tolerated before saturation begins to occur. If saturation does occur, impedance will drop to a very low level causing the bead to be ineffective as an RF attenuator. Once the cause of saturation has been removed, the bead will return to normal with no ill effects.

Temperature rise above the Curie point will also cause the bead to become non-magnetic, rendering it useless as a noise attenuating device. As soon as the cause of the temperature rise has been corrected, and the bead has been allowed to cool, normal operation will be regained and no damage will result. Depending on the material, Curie temperature can run anywhere from 120°C to 500°C. See "Magnetic Properties" chart for specifics.

The #73 and #75 materials, as well as other very high permeability materials are semi-conductive and care should be taken not to position the cores or beads in such a manner that they would be able to short uninsulated leads together, or to ground. Other lower permeability materials with higher resistivity are non-conductive and this precaution is not necessary.

Ferrite Shielding Beads											
Part number	Bead type	Dimensions (inches)			$A_L$ of Materials (mh/1000 t)					Impedance factor*	
		OD	ID	Hgt	43	64	73	75	77		
FB-(--)-101	1	.138	.051	.128	510	150	1500	3000	----	1.0	
FB-(--)-201	1	.076	.043	.150	360	110	1100	----	----	0.7	
FB-(--)-301	1	.138	.051	.236	1020	300	3000	----	----	2.0	
FB-(--)-801	1	.296	.094	.297	1300	390	3900	----	----	2.5	
FB-(64)-901	2	.250	.050	.417	----	1130	----	----	----	** *	
FB-(--)-1801	1	.200	.062	.437	2000	----	5900	----	----	3.9	
FB-(--)-2401	1	.380	.197	.190	520	----	1530	----	----	1.1	
FB-(--)-5111	3	.236	.032	.394	3540	1010	----	----	----	***	
FB-(--)-5621	1	.562	.250	1.125	3800	----	----	----	9600	7.4	
FB-(--)-6301	1	.375	.194	.410	1100	----	----	----	2600	2.1	
FB-(43)-1020	1	1.000	.500	1.112	3200	----	----	----	----	6.2	
FB-(77)-1024	1	1.000	.500	.825	----	----	----	----	5600	3.7	
2X-(43)-151	4	1.020	.500	1.125	Split bead type,					material 43 only.	
2X-(43)-251	4	.590	.250	1.125	Split bead type,					material 43 only.	

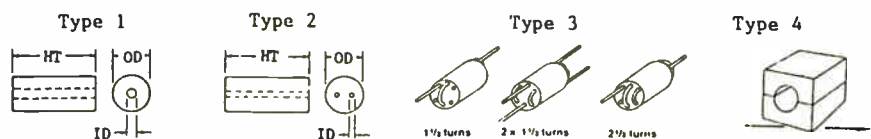
Notes: Complete the part number by adding material number in (--) space provided.

$A_L$  values based on low frequency measurements.

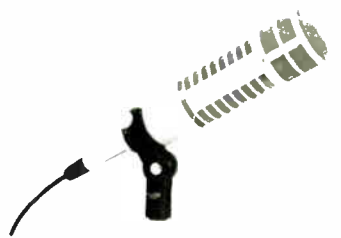



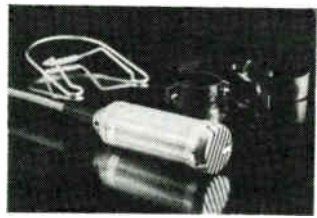
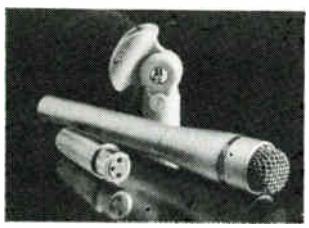



(mh/1000 turns) equal to nanohenries/turns<sup>2</sup>

\*\* Based on a single 'U-turn' winding.

\*\*\* Based on a 2 1/2 turn, side to side winding.



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## New Methods to Analyze HDTV Reviewed by Scientists

LAS VEGAS, Apr. 10 --State-of-the-art methods to assess the degree of picture-quality improvements provided by high definition television (HDTV) were analyzed at a meeting of international scientists expert in psychophysics. HDTV is the next generation of television which will provide wide screen pictures with sharper resolution than those on present TV receivers and with compact disc-quality stereo sound.

The Interim Working Party (IWP) 11/4 of the International Radio Consultative Committee (CCIR), a specialist group that advises the International Telecommunications Union on technical factors to consider in implementing new technologies in telecommunications, met for three days to discuss advanced methods for subjective assessment of television picture quality.

IWP 11/4 Chairman David Wood of the European Broadcasting Union, Brussels, Belgium, said: "The methods currently used for assessment picture quality have ad-

vantages and shortcomings. We are studying alternatives such as ratio scaling and graphic scaling so that the CCIR can universally adopt the methods that best meet the needs of tomorrow's television."

The results of these meetings are expected to receive increasing attention by the U.S. Advanced Television Systems Committee and the Federal Communications Committee's industry advisory committee. Both groups are considering how best to provide an advanced television system for broadcasting.

In addition to studying methods for assessing HDTV picture quality, the IWP 11/4 brought together new information on subjective and objective measures of the major picture quality impairments from using digital coding of television signals for distribution. These results will be considered by CCIR IWP 11/6 (HDTV standards) and by an "extraordinary meeting" of CCIR's Study Group II (television broadcasting) devoted exclusively to HDTV scheduled for May 1989. These meetings will attempt to reach agreement on a single worldwide HDTV studio production standard.

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## NAB/RAB Release Publication on '88 Radio Market Trends

LAS VEGAS, Apr. 10 -- The National Association of Broadcasters and the Radio Advertising Bureau has published the 1988 Radio Market Trends which contains market level data on revenues for over 80 markets. Data are reported for both national and local advertising revenues. In many of those markets, 1984, 1985, 1986 and 1987 data are presented for easy comparison.

NAB's Research Committee Chairman Donald Newberg said, "This publication is very important for station management. The increase in revenues in all markets reflects the continued importance advertisers place on radio to reach the public."

Newberg is president and general manager of WGOW-AM/WSKZ-FM, Chattanooga, TN.

The data in the booklet are from the accounting firms that conduct local market revenue surveys throughout the country. They include Miller, Kaplan, Arase & Co; Hungerford, Aldrin, Nichols & Carter, and other CPA firms.

There were distinct differences by markets, according to the 1987 data. The top ten markets showed the largest average increase in local advertising revenues of 10.4%. Markets 11 - 30 saw an average 5.4% increase, markets 31 - 75, 5.1%, and the smallest, markets 76 and over, increased 3.6%.

As for national advertising revenues, the middle-sized markets fared better than larger and smaller markets. Markets 11 - 30 experienced a 3.5% average increase in national advertising revenues, while markets 31 - 75 saw a 3.4% increase. The smaller markets, markets 76 and over, saw national advertising revenues increase 1.4% while the top 10 markets saw a 0.3% increase.

The 1988 Radio Market Trends is available from NAB Station Services at (800) 368-5644. It is priced at \$50 for NAB and RAB members, \$100 for nonmembers.

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### **Broadcasters Help to Get Out the Vote**

LAS VEGAS, Apr. 12 --Between now and election day 84.4 percent of radio stations and 63.1 percent of television stations plan to include stories on their local newscasts encouraging voter participation, according to a new survey. The random sample telephone survey of 750 stations was conducted in March 1988 by the National Association of Broadcasters.

In addition, public service directors at 94.0 percent of radio stations and 89.2 percent of television stations plan to air public service announcements between now and election day to encourage people to vote.

The survey was conducted in conjunction with "Broadcasting & Democracy: The Winning Ticket," the theme of NAB's 66th annual convention. The theme highlights the important role broadcasters play in informing the public about political candidates, issues and outcomes.

A large majority of the radio (73.6%) and television (66.3%) stations surveyed report that before election day their stations will air local

public affairs programs or segments within these programs dealing with the 1988 elections.

Many of the radio (18.6%) and television (19.3%) stations surveyed are planning to sponsor candidate debates prior to the elections. Of these stations, more than half are planning debates among city or county office candidates (radio, 74.2%; television, 56.3%) or candidates for the state legislature (radio, 50.5%; television, 45.8%).

Over a quarter of the stations are planning debates for federal candidates for Senate and House seats (radio, 33.3%; television, 35.4%) or for other statewide offices (radio, 22.6%; television, 31.3%). Over a tenth (radio, 9.7%; television, 18.8%) are sponsoring debates among presidential candidates and a number (radio, 3.2%; television, 10.4%) are planning debates among vice presidential candidates.

Over ten percent of the stations surveyed are planning to send staff to cover the Democratic National Convention in Atlanta (radio, 7.2%; television, 21.3%) or the Republican National Convention in New Orleans (radio, 6.4%; television, 21.7%) this

summer.

This random sample survey was designed and analyzed by NAB's Research and Planning Department. The telephone fieldwork was conducted by Smith Research of Washington, DC. As with all sample surveys there is some margin of error due to the fact that not all stations were interviewed. The margin of error due to sampling is +/-6.2 percent for the television results, and +/-4.4 percent for the radio results.

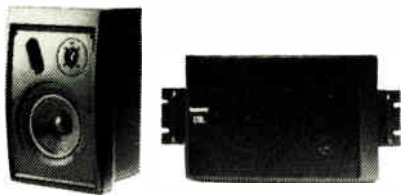
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Continued from page 3

even operate a switched jack. If you force a longer-pin version of a pin plug into a standard pin jack, it may or may not cause damage. If you insert a standard pin plug into a jack intended for the longer-pin version, it may not make good contact, and/or may not operate the switch (if present). We know of at least one VCR model that senses the presence of an external video input via a switched (long-pin) pin jack.

In summary, if the plug fits, do not assume it is OK to "wear it."

# E.I. Spotlights on New Products



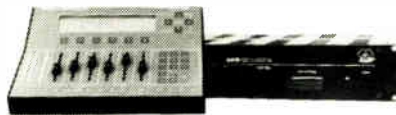
JBL has announced its Control 5 compact two-way monitor system.

Designed for studio monitoring, sound reinforcement, and foreground music applications, the Control 5 features a 6.5-inch low frequency loudspeaker and the same one-inch titanium dome tweeter found in larger JBL studio monitors. The unit is voiced for a smoothly rising, forward sound character. This contrasts with the flat, tight tolerance accuracy of JBL's Studio Monitor line. Rated to a capacity of 175 watts, the usable frequency response of the Control 5 ranges from below 50 Hz to beyond 20 kHz. Transducers are magnetically shielded so that the system may be used in close proximity to television receivers or video monitors without affecting picture quality.

Edittall has developed the EC series magnetic splicing blocks, designed for splicing the thin, fragile tape utilized in digital formats. With flat bed, edge-clamping configurations, these blocks help eliminate the characteristic lifting and shifting of thin tape due to static attraction. According to the manufacturer, this design also provides continuous access for splicing the tape, while holding it securely in the block. Although primarily developed for the demands of digital editing, advantages for other critical splicing applications are realized as well.

Yamaha has introduced its MZ microphone series, comprising the MZ204 and MZ205Be drum microphones, and the MZ106S and MZ203Be vocal microphones.

The MZ203Be microphone features Yamaha's pure beryllium diaphragm and special acoustic dampers. The MZ106S features an on/off switch mounted on the microphone body. A plate is also provided which locks the switch in the on position.



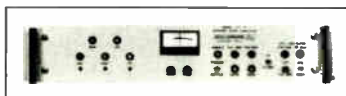
AKG Acoustics has introduced its V4.0 upgrade for the ADR 68K digital effects system.

The upgrade features an expanded audio memory of 1M words, new reverb programs, expanded system functions, and expanded MIDI features. For instance, any MIDI command can control any parameter on an upgraded ADR 68K. The upgrade kit also includes 16 1M DRAM chips, new EPROMs containing the programs and software, and updated owner's manual pages. The V4.0 features an ergonomic user interface, with full-size controls, display, and a comprehensive help system.

Suggested retail price for the V4.0 upgrade kit: \$1,995.



Electro-Voice has expanded its BK-1632 16-channel mixing console, with the introduction of its BK-32 series of 24-, 12-, and rack-mountable eight-channel console configurations. Designed with the needs of sound engineers in mind, the BK-32 series features subgroup capability, individual channel effects loops, multiple sends, phantom power, and pre-fade listen.



**DELTA—Automatic power controller:** The Delta APC-1 is an automatic power controller that connects to the transmitter's power adjust controls to keep it at optimal power levels through monitoring a sample of the actual power output levels.

Originally used in radio applications, the APC-1 can interface to transmitters, and be adjusted for two different power levels.

New parametric equalizers from Orban Associates include models 642B, 764B, and 787A.

The model 642B features switchable four-band dual-channel or eight-band mono parametric equalization/notch filtering. The unit also contains the 12 dB/octave Automatic Sliding Besselworth low-pass filter, 18 dB/octave high-pass filter, and vernier-tuned frequency notching. Orban's 764B programmable equalizer can store 99 complete control setups in memory for instantaneous recall. The 787A contains a parametric equalizer, compressor, de-esser, noise, and compressor gate. This unit can also store up to 99 control setups. MIDI and RS-232 control interfaces are available for the 764B and 787A.



QSC has introduced the model 2000 into its MX series of power amplifiers. Based on the technology of the manufacturer's Series Three amplifiers, the MX 2000 delivers 625 watts per channel at 4 ohms.

The MX 2000 is a dual monaural unit, allowing each of its two channels to operate as an independent amplifier, sharing only AC cord and power switch. Occupying three rack spaces, the unit utilizes a forced air cooling system which permits high duty cycle operation with low impedance loads. The cooling system can be adjusted by a two-speed front panel control. A high-efficiency output circuit reduces waste heat.

Aphex Systems has introduced the model 114 stereo 10-4 box, designed to interface consumer audio equipment with professional studio and broadcast equipment.

The model 114 features both XLR and RCA-type connectors, facilitating quick hookups. Attention to circuit details such as high common mode rejection; low distortion, noise and crosstalk; and transformerless design suit the machine for connecting the new hi-fi level digital disk and tape machines in the studio, according to the manufacturer. Active, servo-balanced circuitry converts +4 dBm or (+8 dBm) line levels to -10 dBm (hi-fi) levels, and back again.



Otari has debuted its MX-55 series of quarter-inch tape recorders, designed for broadcasting, recording studios, and audio postproduction applications.

The series includes a full track, two-track NAB or DIN stereo, and a two-track with center-track time code. It is also available as a two-track, with or without time code. Transports feature a DC quartz PLL capstan motor with user-selectable speed pairs of 15/7.5 or 7.5/3.75 ips, and are easily controlled from an external synchronizer with 9600 Hz frequency servo control. A seven-digit tape timer with four-memory mini-locator is included as a standard feature.

Suggested retail price for the MX-55-N, the first release of the series: \$3,695. The other models are slated for release later in the spring.



Crown has made available its Macro-Tech 600, 1200, and 2400 miniaturized power amps, each an enhancement of the company's corresponding Micro-Tech LX model numbers.

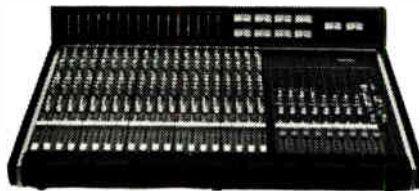
In mono mode, the Macro-Tech 600 can deliver 600 watts average power at less than 0.1-percent THD into 1 or 4 ohms. In stereo, the unit delivers 275 watts-per-channel into 4 ohms or 220 watts into 8 ohms at 0.1-percent THD. The model 1200 provides 1200 watts of mono into 1 or 4 ohms, 470 watts of stereo per channel into 4 ohms, or 320 watts into 8 ohms. The Macro-Tech 2400 delivers 2,400 watts in parallel mono mode into 1 ohm at 0.1-percent THD. Its stereo delivery is more than 800 watts per channel into 4 ohms, or 525 watts into 8 ohms. Within 3.5 inches of vertical rack space, each amp features a variety of optional, plug-in circuit cards that add functions in series with the amplifier input.



**TASCAM—Multitrack recorder:** The 238 Syncaset is a rack-mountable, eight track recording system which utilizes standard audio cassettes.

Features include 3.75 ips tape speed, full-function remote control, auto punch in/out, auto rehearse, dbx II noise reduction, and MIDI (FSK) compatibility.

According to the company, the 238 Syncaset is SMPTE-friendly, giving it the ability to lock up with other decks and synchronize with video.



Ramsa/Panasonic has released its WR-T820B eight-buss recording console.

To enhance its audio performance, high-speed operational amplifiers are used at critical gain stages throughout the console's circuitry. New MRP 300,000 operation faders are designed to deliver smooth, accurate operation. Full-function LED and VU metering enables metering of all inputs and outputs.



**ORBAN—Stereo spatial enhancer:** Model 222A was primarily designed for AM and FM stereo broadcasting and for final processing of stereo CD and cassette masters.

It utilizes the company's patent-pending technology to detect and enhance psychoacoustic directional cues which are present in stereo program material.

The 222A has stereo inputs and outputs and is typically placed in the program line prior to the audio processing.

**PANDUIT—Fitting accessory:** Two new fittings designed for routing and protecting fiber optic cables are used in conjunction with the company's wiring product.

**BEYER—ENG/EFP microphone:** The M58 is an omnidirectional dynamic mic designed specifically for electronic newsgathering and electronic field production applications.

It incorporates an internal shock mount system designed to reduce handling noise. The high output microphone's extended response is contoured with an upper frequency rise.

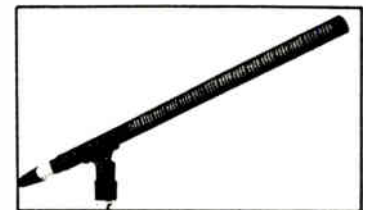
The unit's weight-balanced design is designed to insure minimal fatigue during length interviews.



**EVENTIDE—Harmonizer:** The H3000 is designed with four key features: stereo pitch change, diatonic pitch change, signal processing and MIDI implementation.

The stereo pitch change feature includes stereo/mono-compatible, phase compensated deglitch circuitry. Diatonic pitch change is a new effect designed to allow users to create accurate harmony lines.

This unit is the first Eventide harmonizer that features real-time MIDI control of all parameters.



**AUDIO-TECHNICA —Shotgun microphones:** The AT4071 and AT4073 are the first of the company's new 40 Series gradient microphones. They contain externally polarized capacitor elements for long distance broadcast applications.

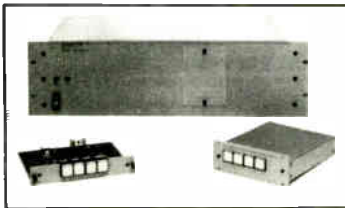
With both the diaphragm and side ports exposed to the same acoustic environment, the microphones are reported to be less sensitive to wind noise.

Standard features include a foam widescreen, and integral second-order 150 Hz hi-pass filter to roll-off the low frequency response and attenuate low-frequency ambient noise.

(continued next page)

## More New Products

**Ampex** has unveiled a new packaging system for its line of Ampex 187 broadcast and Ampex 197 master broadcast U-matic video tape.



**CLEAR-COM—Station ISO system:** The ISO-4000 Station Isolate System is designed to quickly establish private, isolated two-way communication paths between two or more Clear-Com stations in a conference line intercom system.

The system uses a microprocessor to increase flexibility and significantly reduce control/tally cabling requirements. The device is expandable to isolate up to 16 stations from multiple control points.

It provides an ancillary function to both new and existing Clear-Com intercom systems.

**APHEX—Audio "10-4" box:** The Model 114 is a "10-4" interface box which brings consumer products such as Compact Disc players from -10 dBm line levels up to professional +4 levels for recording or playback through a pro system.

The product features XLR and RCA-type connectors to enable quick patching with high common mode rejection and low distortion, noise and crosstalk in a transformerless design.

The unit allows Aphex's ESP-7000, a consumer Dolby Surround Sound processor, to be used to monitor professional mixes with a consumer perspective.

**PHILIPS—Digital multimeter:** The PM2525 features 18 measurement functions such as AC/DC volts and amps, four-wire and two-wire resistance, capacitance, frequency, time, temperature, dB and continuity check.

There are five voltage, eight current and seven resistance ranges. The PM 2525 also provides the three functions of min/max, zero and dBm to enhance understanding of measured values.

The unit also has 4.5 digit resolution with a 21,000 count display or 5.5 digit resolution with a 210,000 count display in high resolution mode. The product was developed jointly by Philips and John Fluke Mfg.



**STUDER—Cassette deck:** The A721 professional recorder features four motor, dual capstan, die cast transport and headblock. Dolby B and C noise reduction and Dolby HX headroom extension system.

Audio electronics are self-aligned for level, bias and EQ by a dedicated microprocessor using a multi-frequency alignment method.

Operational features include a real time counter, locator function with address memories, calibrated and uncalibrated input and output level and an illuminated multi-function display including peak reading level meters.



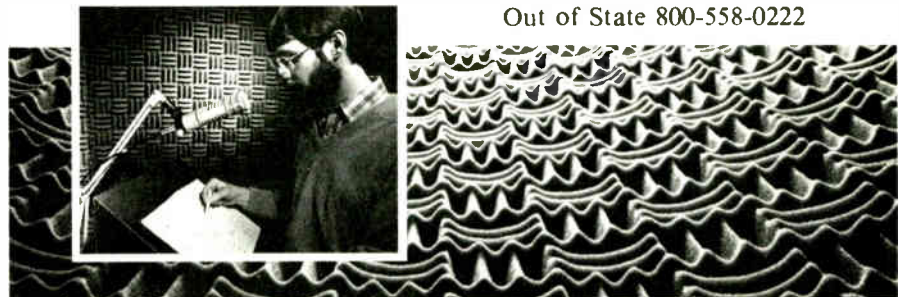
## A SIGHT FOR SORE EARS.

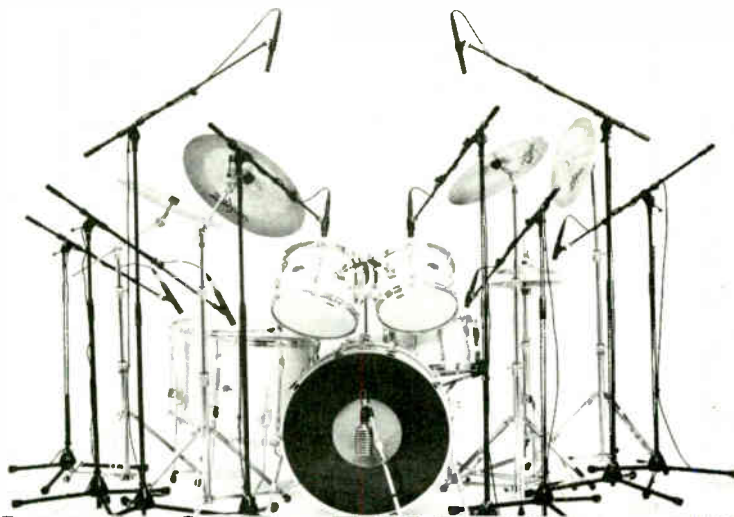
If ears could talk, they'd scream for SONEX.

The only patented acoustic foam with a specially sculptured anechoic design can replace traditional studio materials for a fraction of the cost. SONEX absorbs sound, controls reverb, eliminates stray reflections, and kills standing waves. What's left is true sound. Your ears know. Listen to them. Simple to apply and economical to buy, SONEX blends with almost any decor and looks clean, sharp, professional. Call or write us for all the facts and prices.

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## YOU CAN'T GET NEW DRUM SOUNDS FROM THE SAME OLD MICROPHONES

### The drum set is a new instrument:

With electronic percussion, sampled acoustic sounds, special effects treatments, it's growing into a more expressive, wider-ranging, harder-driving instrument. But "old reliable" mics and miking techniques don't solve the problem of integrating acoustic drums and cymbals into this technically evolved context.

### A new approach:

The Beyer Percussion Mic Group — performance-matched to every acoustic element of the modern drum set. Discerning drummers and engineers use these specially designed and selected mics because they deliver truthful drumset reproduction for sampling, recording or live reinforcement. Every Beyer Percussion Microphone is constructed to withstand the physical punishment a drum set absorbs. Each one is chosen for a particular combination of critical performance characteristics.

### Power

Dynamic range is the key to capturing the impact of the drum. Beyer Percussion Mics like the M 380 handle the extreme SPLs of close



miking without overload, yet capture the subtleties of touch that distinguish a player's unique style.

### Speed

Percussive attacks test the entire system's transient response. Like several Beyer Percussion Mics, the M 422 has a small diaphragm for the



instantaneous response that produces a crisp, well-defined sound.

### Control

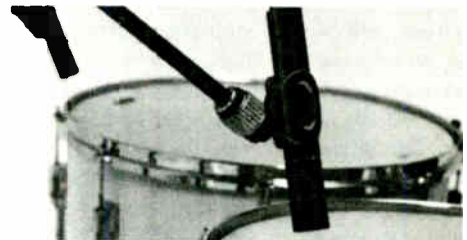
Isolation of individual drums and cymbals is critical when a variety of microphones are used on the drum set. Beyer Percussion Mics such



as the M 420 have tightly controlled polar patterns. The 'top of the set' snare and tom mics also employ a precisely tailored frequency response to minimize leakage from the bass drum and floor toms.

### Character

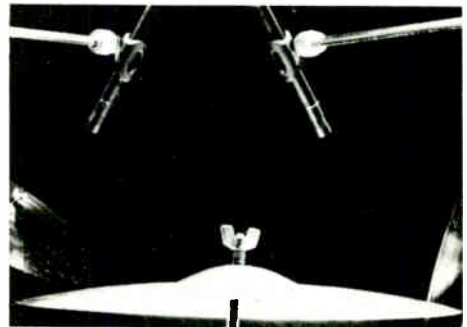
More than any other factor, it's what sets acoustic drums (and drummers) apart from the crowd. Beyer Percussion Mics like the



M 201 combine carefully regulated proximity effects with precisely controlled polar patterns. By varying placement and distance, you can capture each drum's character and personalize the player's sound.

### Accuracy

The drum set generates every frequency in the audible spectrum. The extended frequency response of the MC 713 condenser and the



other Beyer Percussion Mics accurately reproduces all of them.

**Get the whole story** More information on how drummers, engineers and other audio professionals can select and employ the Beyer Percussion Microphone Group for optimum results is available in **What every Drummer Should Know About Miking Drums**, a poster-size manual. It covers mike selection, tips for proper placement, and presents a range of setups to accommodate every playing style (and every budget). For your copy, send \$3.00 to: **Beyer Dynamic Inc., 5-05 Burns Avenue, Hicksville NY 11801.**

# MEMO FROM METZ



by  
David L. Metz

## “CARTS”

The common NAB cart is perhaps the best example in broadcasting of a basic design stretched almost to the breaking point. There are some nice high performance cart machines on the market today. The problem is, most of us work at stations that could never, or won't ever buy them. So we have to learn to live with what we've got.

There are some practical things that you can do to improve cart sound. First start with your stations carts. Do they all have the same tape in them? Silly question? No way! If you want all your carts to sound the same, they have to be biased the same (for one), that means they all have to have the same tape.

So lets start a rebuilding program since you can't afford new ones. Are rebuilt carts any good? Well... I used them in a automatic message machine. The best service I got from a Fedelapac 70 seconds 380 was just over 10,000 plays. That's right, 10,000 plays! And it still sounded good right up till the tape broke.

Call your rewinder and ask whose tape he uses. It better not be that junk made in Mexico. Ask for Fidelapac, I hear they make their own now, and from my experience it wears like iron (well shouldn't iron wear like iron?).

Start by inspecting your carts. Pull the ones with cracked plastic bases, broken tops, rattling pieces or just look like they've been around since 1972. Pay close attention to the pressure pads and tape. If the tape has lines in it, rebuild the cart. If the pads don't spring right back when you press them, pitch the cart in the rebuild box.

Quiz the production staff and find out what run times they really need, not what you currently have.

Remember production requirements change through the years. Then order a practical mix of sizes so your inventory won't be disrupted as you change over.

Note that the excellent Fedelapac 360 carts (red bottom) can be rebuilt into the much better 380 (gold bottom) carts. I've tried a few of the new whiz bang carts that have come out lately. None of them have taken the long term abuse that our Fedelapac 350 and 380's have.

When the rebuilt carts come in, slap them down on their base on your work bench to loosen up the tape pac. Then turn them over, mark the time on the bottom and the date with a magic marker. Then go to the production studio and pick a few at random and time them to make sure you got what you paid for.

When the great day comes when your cart inventory holds a good percentage of new (rebuilt) carts, grab your test gear and reset the record bias and EQ on your production machines. Then line up the studio playback machines to match your new carts.

Once your cart renewal program is well under way and all your machines realigned, start a regular inspection program. Once a week, look every cart over. If the production department refuses to reproduce a worn cart, just dub the thing off to a good one and notify the sales rep for the client. The sales person will see that a new spot is cut.

After about a year of this, I noticed fewer on the air failures and the stations spots had a better more consistent sound. The reduced rate of cart failures meant fewer staff tantrums in the studios. It's amazing how such a simple thing like cart inspection and rebuilding can have such good effects.

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## Senator Ted Stevens Receives Grover Cobb Memorial Award

IAS VEGAS, Apr. 11. --Senator Ted Stevens (R-AK) received the National Association of

Broadcaster's Grover C. Cobb Memorial Award during NAB's 66th annual convention. The presentation to Stevens, a member of the Commerce Committee, occurred at last night's Legislative Liaison Committee (I.L.C) dinner. The I.L.C consists of more than 1,200 NAB members who provide grassroots lobbying for the Association.

In accepting the award Senator Stevens said: *"As a member of the Senate and the Senate Commerce Committee for the past 20 years, I've watched the broadcasting industry and the other electronic media grow and mature. Throughout these years of change and upheaval, two things have remained constant--my deep respect for the First Amendment's guarantees, which are so important to the broadcasting industry, and my appreciation for the ability of broadcasting to reach out to Americans, rich and poor, urban and rural alike, to entertain, inform and educate."*

In presenting the award, NAB President and CEO Edward O. Fritts said: *"Senator Stevens has been a consistent supporter of Senate legislation that would provide much-needed reform of the license renewal process. He has championed our First Amendment rights during the many twists and turns that the Fairness Doctrine has taken in Congress this decade...He recognizes how important must carry rules are for our nation's television system (and) was a crucial opponent of last year's ill-conceived transfer tax package."*

The award, sponsored by the Television and Radio Political Education Committee, honors the memory of Cobb, former NAB senior vice president for government relations. It is given to a broadcaster or public servant who demonstrates unusual dedication to improving broadcasting's relationship with the federal government.

In addition to a plaque, Stevens also received a \$5,000 check for the Grover C. Cobb Memorial Scholarship. He said he will donate it to the University of Alaska at Anchorage. The stipend is for use by an undergraduate majoring in broadcasting, government or political science.

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## EI Classifieds

**EI Classifieds are free to the readers of Common Point Magazine. To place an ad, simply write it on the Acknowledgement Card that comes with each issue and mail card.**  
**WANTED TO SELL**

**WANTED TO SELL:** ITC 750 Reproducers, good condition, 3 available, \$400 each. Ampex 350 with Inovonics 360 electronics, stereo, heads need refurbishing, \$500; Studer A725 CD player with digital speed control, very good, \$700; gates exec. console, presently on-air, available about July 15, most original pre-amp/amp cards replaced with Altec modules, \$1500, with some spare parts; IBM system 24 computer, main frame only, no peripherals, with spare hard drives and other subassemblies, \$500, you ship. 515-621-6960. WUBE/WDJQ, 225 E. 6th St. Cincinnati, OH 95202.

**FOR SALE:** Rohn 90' galvanized steel self-supporting three leg tower with all hardware. Now on the ground. 913-628-8451, after 2 pm CDT. KAYS, 2450 Hall, Hays, KS 67601.

**FOR SALE:** 6 EF Johnson type RF contactors \$50.00 ABS-MRP-1 cue command decoder with printer cable \$500.00. Write to KMA, 209 N. Elm, Shenandoah, IA 51601.

# TALKBACK

**DULUTH, MN--**Look forward to every issue. Keep up the good work.

**R.C., SD--**I'm not sure if Metz is leaving the numeric designations off his salematics to test us or its an editorial goof? I mean if a salematic has 1 relay leaving K1 undesignated is no big deal, but diodes & trannys should be numbered properly, especially if they are being referred to in the script. Also, if the "324" lamps are as hard to find in your city as they are in mine, you might substitute a 327. Or better yet, for much longer life (like 3-1/2 times you could try 387's. They'll cost about 15¢ more, but are worth it. Hang in there.

**WINDSON, CO--**Always thoroughly enjoy the magazine, especially the articles on cart machine up grading by David Metz.

**MISHAWAKA, IN--**I can see my grandson one day asking...Grampa, what was this thing they called AM stereo. Then after I explain it, he'll say, whats AM? (I am also a C.E. for an AM D.A.)

**BOISE, ID--**We are planning to start NRSC standard soon. If U.S. engineers think 10KHz is "narrow," just compair it to European standards of 4.5 KHz! (This is for protection of first adjacent stations.) Found that out during a tour of Radio Oxford in '78. Stations over there had a nice "mellow" sound, not muddy. I also noted very little splatter, even from the 1 meyawatt stations. Clean!

**TRUMANN, AR--**Thanks so much for your newsletter. Packed with info we can use!

**DEVILS LAKE, ND--**Keep em coming.

**NORMAL, IL--**Enjoy common point newsletter.

**DAYTON, OH--**Thanks.

**MISHAWAKA, IN--**Thanks for the current issue! Keep up the good work.

**RAPID CITY, S.D. --** Been dealing with E.I. for over twenty years and have always appreciated having them in my corner.

**GRAND ISLAND, NE --** Another good series of articles in this issue of Common Point...thanks again.

**TOPEKA, KS --** Enjoy reading CP, keep up the good publication.



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